Riparian Vegetation Studies—Monitoring Vegetation Change

In August, September, and October, you may see ecologists collecting plant data at sites along the Colorado River corridor to monitor riparian vegetation. These activities are part of a study coordinated by the U.S. Geological Survey's (USGS) Grand Canyon Monitoring and Research Center (GCMRC) in collaboration with the National Park Service (NPS), to understand the effects of Glen Canyon Dam operations on riparian vegetation in the river corridor through Glen Canyon National Recreational Area and Grand Canyon National Park.

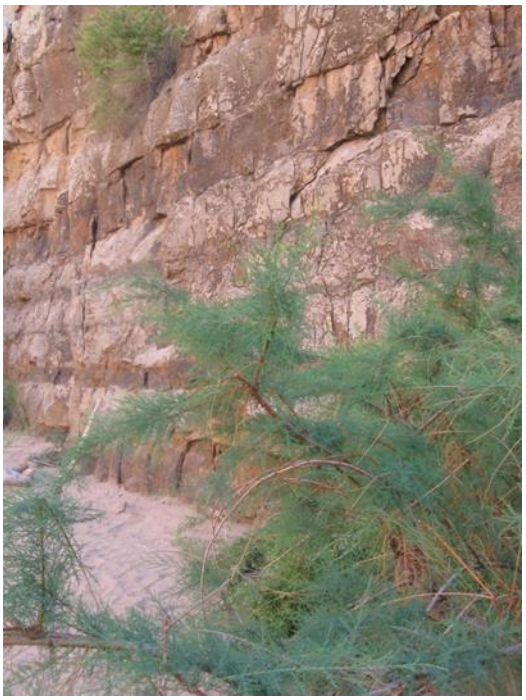
Importance of Riparian Vegetation

Riparian vegetation is an important part of the Colorado River ecosystem. The composition and amount of riparian vegetation affects many aspects of the ecosystem, including food and shelter for birds and mammals, shoreline habitat for fish and other aquatic animals, sediment deposition and erosion, and bank stability. It can also affect recreation by reducing campsite size or, conversely, adding to the beauty of the landscape. For example, the nonnative species tamarisk (*Tamarix* spp.) is a dominant species along the river corridor. Its presence affects arthropod communities, plant diversity, the amount and type of plant litter, as well as food and nesting habitats for birds. It encroaches on campsites, but also creates a wind break and shade for campers. Like riparian vegetation as a whole, this species has had a large effect on the river corridor and changes to it will affect other ecosystem components.

Riparian Vegetation Monitoring

Regular monitoring of riparian vegetation is important for tracking changes to the ecosystem. Changes in the characteristics of riparian vegetation can signal the loss of biotic diversity along the channel. For example, contraction of the width of the riparian zone, a potential response to altered hydrology, can affect additional resources such as aquatic and riparian habitats and species. Additionally, regular monitoring provides information about the effect of climate change on riparian vegetation in the southwest.

Our Science and Your Trip



In the fall, you may see plant ecologists studying vegetation on sandbars, river edges, and debris fans along the Colorado River corridor in Glen Canyon National Recreation Area and Grand Canyon National Park. Some of the sampling sites are near commonly used camp sites along the river. They will be recording the kind of plant species found using long measuring tapes, square frames, and clipboards. These activities are part of a study coordinated by the USGS's GCMRC in collaboration with the NPS. The monitoring data is used to assess changes in riparian vegetation relative to operations of Glen Canyon Dam. Of particular interest is how plants respond to the High Flow Events (HFE) and to alterations to tamarisk (*Tamarix* sp.) populations due to the tamarisk beetle (*Diorhabda carinulata*). If you encounter this group of scientists, feel free to ask the crew questions about the project or the plant species.

For more information, please contact:

Emily Palmquist
U.S. Geological Survey
Grand Canyon Monitoring and Research Center
Flagstaff, AZ 86001
epalmquist@usgs.gov

Cooperators:

NATIONAL PARK SERVICE

FOREST SERVICE US DEPARTMENT OF AGRICULTURE

NORTHERN ARIZONA UNIVERSITY
FOUNDED 1899